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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,956	01/10/2005	Henrik Bisgaard-Frantzen	10288.204-US	2783

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NOVOZYMES NORTH AMERICA, INC.
500 FIFTH AVENUE
SUITE 1600
NEW YORK, NY 10110

EXAMINER

KIM, TAEYOON

ART UNIT PAPER NUMBER

1651

DATE MAILED: 10/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/520,956

Applicant(s)

BISGAARD-FRANTZEN ET AL.

Examiner

Taeyoon Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 41-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/10/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 41-49 are pending.

Election/Restrictions

1. Applicant's election without traverse of Group II (claims 32-35 and 40) and the amendment in the reply filed on Sept. 21, 2006 is acknowledged.

Applicant's amendment filed on Sept. 21, 2006 has been received and entered into the case. Claims 1-40 have been canceled, claims 41-49 are pending and have been considered on the merits.

Information Disclosure Statement

2. The information disclosure statement filed Jan. 10, 2005 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because some of foreign patent documents are provided without translation. It has been placed in the application file, but the information referred to therein has not been considered as to the merits.

Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Specification

3. The disclosure is objected to because of the following informalities: There is inconsistent usage of the term "trans-2-nonenal". A different term "trans-2-noneal" is also used in the specification.

Appropriate correction is required.

Claim Objections

4. Claim 41 is objected to because of the following informalities: A typo in the last line of the claim. There are two periods at the end of the claim. Appropriate correction is required.

5. Claim 47 is objected to because the term "trans-2-nonenal" in the claim is not consistently used in the specification ("trans-2-noneal", see p.4). Appropriate correction is required.

6. Claims 46 and 47 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The current claims contain whereby/wherein clauses. Claim scope is not limited by claim language that suggests or makes optional but does not require steps to be performed, or by claim language that does not limit a claim to a particular structure. However, examples of claim language, although not exhaustive, that may raise a question as to the limiting

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effect of the language in a claim are “adapted to” or “adapted for” clauses, “wherein” clauses, and “whereby” clauses.

The determination of whether each of these clauses is a limitation in a claim depends on the specific facts of the case. *In Hoffer v. Microsoft Corp.*, 405 F.3d 1326, 1329, 74 USPQ2d 1481, 1483 (Fed. Cir. 2005), the court held that when a “whereby” clause states a condition that is material to patentability, it cannot be ignored in order to change the substance of the invention.” *Id.* However, the court noted (quoting *Minton v. Nat’l Ass’n of Securities Dealers, Inc.*, 336 F.3d 1373, 1381, 67 USPQ2d 1614, 1620 (Fed. Cir. 2003)) that a “whereby clause in a method claim is not given weight when it simply expresses the intended result of a process step positively recited.” *Id.* See M.P.E.P. § 2111.04.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 41-49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The step (b) of the method in claim 41 and its dependents is not clear where the cellulase is added. It appears that the cellulase is added to the mash, but it is not clearly pointed out.

The phrase "extract recovery of at least 80%" in the step (d) of claim 1 is not clear what the percentage points out. This could be 80% of barley malt, mash or mixture of mash and cellulase.

Claim 41 and its dependents recite the limitation "the wort" in the 7th line of the claims. There is insufficient antecedent basis for this limitation in the claim.

Claims 42-44 contain the additional step to the method of claim 41. In the current claims, it is not clear at which point the additional step is added. The additional step could be added before, during and after of each step disclosed in the method of claim 41.

Claim 46 recites the limitation "the concentration of dimethyl sulfide" in the first line of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 47 recites the limitation "the concentration of trans-2-nonenal" in the first line of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 41-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Witt (US 4,788,066).

Claims 41-49 are drawn to a method for production of beer comprising (a) forming a mash comprising 5-100% of barley malt (w/w of the grist); (b) prior to, during or after the step (a), adding a cellulase to the mash; (c) within 15 min of the step (a), attaining an initial incubation temperature of at least 70°C; (d) incubating the mash at a temperature of at least 70°C for a period of time sufficient to achieve an extract recovery of at least 80%; (e) separating a wort from spent grains; (f) fermenting the wort with a yeast, and obtaining a beer (claims 41, 46 and 47); a limitation to the method being further comprising a step of adding a protease (claim 42); a limitation to the method being further comprising a step of adding an alpha-amylase (claim 43); a limitation to the method being further comprising a step of adding a maltose generating enzyme (claim 44); a limitation to the beer being ales, strong ales, bitters, stouts, porters, lagers, export beers, malt liquors, barley wine, happoushu, high-alcohol beer, low-alcohol beer, low-calorie beer or light beer (claim 45); a limitation to the maltose generating enzyme being a beta-amylase or a maltogenic alpha-amylase (claim 48); a beer produced by the process of claim 41 (claim 49).

Witt teaches a method of producing low alcohol beer using barley malt (all-malt; 100% barley malt), alpha-amylase and cellulase at the temperature 78-80°C. Witt also teaches separation of wort after mashing process and fermentation with a yeast to produce a low alcohol beer (see abstract; column 2, lines 11-46).

Witt does not particularly teach that the initial incubation temperature being attaining within 15 min. of the step (a). However, since the method of Witt requires a mashing process at the temperature of 78-80°C using 100% barley malt without any

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intervening steps, it is obvious that the incubation step is carried out immediately, if not within 15 min of forming a mash.

Although Witt does not teach that the extract recovery being at least 80%, it would have been obvious for the person of ordinary skill in the art at the time the invention was made to optimize the extract recovery of wort after a mashing process. The selection of recovery rate at least 80% would have been a routine matter of optimization on the part of the artisan of ordinary skill, said artisan recognizing that it is economical to obtain higher percentage of soluble extracts (wort) from a mash in the process of beer production. A holding of obviousness over the cited claims is therefore clearly required. The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages. See *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382.; See also M.P.E.P. § 2144.05.

Therefore, the invention as a whole would have been prima facie obvious to a person of ordinary skill at the time the invention was made.

9. Claims 41-44 and 46-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walmsley et al. (US 3,716,365).

Claims 41-44 and 46-49 are drawn to a method for production of beer comprising (a) forming a mash comprising 5-100% of barley malt (w/w of the grist); (b) prior to, during or after the step (a), adding a cellulase to the mash; (c) within 15 min of the step (a), attaining an initial incubation temperature of at least 70°C; (d) incubating the mash

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at a temperature of at least 70°C for a period of time sufficient to achieve an extract recovery of at least 80%; (e) separating a wort from spent grains; (f) fermenting the wort with a yeast, and obtaining a beer (claims 41, 46 and 47); a limitation to the method being further comprising a step of adding a protease (claim 42); a limitation to the method being further comprising a step of adding an alpha-amylase (claim 43); a limitation to the method being further comprising a step of adding a maltose generating enzyme (claim 44); a limitation to the maltose generating enzyme being a beta-amylase or a maltogenic alpha-amylase (claim 48); a beer produced by the process of claim 41 (claim 49).

Walmsley et al. teach a method of producing beer comprising a mashing process of barley malt with an amount of up to 30% by weight, with alpha-amylase (maltose generating protease; maltogenic alpha-amylase), beta-amylase and cellulase, at the incubation temperature at 70-80°C to obtain a wort, separation of wort from the spent grains, and fermenting the wort with a yeast and obtaining a beer (see columns 4-6, 9-11 and Example 3).

Although Walmsley et al. do not particularly teach the extract recovery of at least 80%, it would have been obvious for the person of ordinary skill in the art at the time the invention was made to optimize the extract recovery of wort after a mashing process. The selection of recovery rate at least 80% would have been a routine matter of optimization on the part of the artisan of ordinary skill, said artisan recognizing that it is economical to obtain higher percentage of soluble extracts (wort) from a mash in the process of beer production. A holding of obviousness over the cited claims is therefore

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clearly required. The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages. See *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382.; See also M.P.E.P. § 2144.05.

Although Walmsley et al. do not particularly disclose ales, strong ales, bitters, stouts, porters, lagers, export beers, malt liquors, barley wine, happoushu, high-alcohol beer, low-alcohol beer, low-calorie beer or light beer, it is well known in the art that these are species of beers and obvious alternatives each other.

Therefore, the invention as a whole would have been prima facie obvious to a person of ordinary skill at the time the invention was made.

Conclusion

10. No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taeyoon Kim whose telephone number is 571-272-9041. The examiner can normally be reached on 8:00 am - 4:30 pm ET (Mon-Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

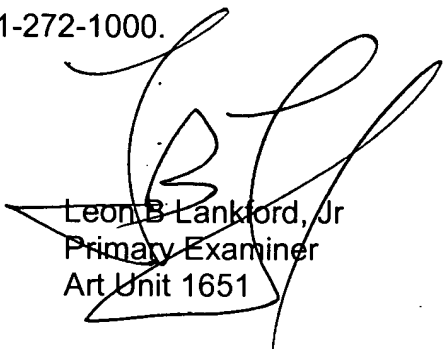
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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Taeyoon Kim
Patent Examiner
Art Unit 1651



Leon B. Lankford, Jr.
Primary Examiner
Art Unit 1651